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*Return*

To: Mr. W. R. Moore  
From: R. S. Blackwell/V. N. Peace  
Subject: Product Quality Improvements - Stockton Street

Date: May 12, 1981

Subject

An extensive program was initiated in November 1980 to reduce loose and void end problems at Stockton Street. Listed are the approaches taken in an attempt to provide solutions and suggested alternatives for the future.

Conclusions

1. There is a definite loose/void end problem at Stockton Street.
2. Actions taken have decreased loose/void ends.
3. There is a need for continuation of the current program of sampling to monitor for loose/void ends and other quality problems.

Recommendations

1. Primary should continue improvements to quality through moisture control and product handling.
2. Manufacturing should continue the overhauling schedule, and instituting machine improvements.
3. Q.A. should continue monitoring sieves and O.V. and develop a procedure for troubleshooting loose/void end problems. Increased manpower would expedite locating trouble areas so that adjustments may be made.

Highlights

1. Moisture meters were added to improve the accuracy of O.V. measurement.
2. ADT dryer operation methods were modified to improve C.V.
3. Pneumatic systems were examined, some improvements were made, and others are underway.
4. Fines removal from ripper shorts were increased to 26%.
5. A continuing schedule of fabrication machinery overhauling was instituted.
6. Q.A. increased sampling quantities.
7. Cigarette 100 weight targets were increased on Saratoga, Marlboro L.S. and K.S.

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## PRODUCT QUALITY IMPROVEMENT -- STOCKTON STREET

In November 1980 manufacturing problems due to loose and void ends reached excessive proportions at Stockton Street. A program was undertaken to eliminate these problems, concentrating on product quality, machinery conditions, and extensive sampling. Outlined below are the actions which were taken.

### I. Prefabrication

#### A. Moisture Measurement

1. An additional moisture meter was added to the filler weighbelt. These two meters were designated as the target meters for drying set points for more dependable accuracy.
2. A moisture meter was installed at the inlet to ADT Dryer No. 1 to enable the operator to compensate for large variations in infeed moisture and to identify moisture problems upstream.

#### B. ADT Dryers

1. An examination of drying techniques indicated that the dryers were not being operated for maximum C.V., and computer control was sometimes being preempted.
2. Operators were instructed to run the dryers with high heat from the steam coils and minimum preheat air flow to obtain maximum C.V. and minimum degradation.
3. Computer control has been more heavily relied upon.

#### C. Pneumatic Conveying

1. Pneumatic Feed Systems to makers - some velocities were found to be high, causing excessive degradation. Adjustments were made and a regular schedule of velocity measurement was instituted.
2. Pneumatic carry-over from ADT Dryers showed four to five percent loss in long tobacco.
  - a. A new tangential separator has been installed to lower conveying velocities and to correct a wear problem in the old separator. Initial sieve tests show no measurable improvement.
  - b. Inherent characteristics of this system degrade the tobacco.
  - c. An evaluation is underway to determine if the pneumatic system can be replaced with conveyors. If this replacement is not possible the pneumatic system should undergo extensive repairs.

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#### D. Miscellaneous

1. Fines removal from ripper shorts was increased to 26%.
2. The rate of ripper shorts addition has been carefully controlled to eliminate over feeding.
3. Speeds of doffers, feeders, and rotary locks have been reduced to decrease tobacco breakage.

### II. Fabrication

#### A. Machine Maintenance

1. One or two makers are continuously down, factory wide, for overhauling. An AMF packer is also down for overhauling. One third of the time a hinge lid packer is also down.
2. When a particular machine is identified as having a loose end problem, the entire maker is checked out.
3. Maker weight control units are checked out when weight variance is a problem.

#### B. Machine Improvements

1. All leaks in dust collection systems were repaired, and the frequency of dust bag cleaning was increased. Dust boxes are emptied at least twice per shift.
2. The remaining brass drums and early vacuum drums on Mark 8's were replaced with aluminum drums.
3. Most mechanical kickers were replaced with vacuum type kickers.
4. Air flows on Mark 9's were analyzed and proper fan and hopper pulley sizes were recommended.
5. High voltage detectors were installed on AMF packers. The setting and cleaning of detectors was instituted on a regular basis.

### III. Quality Assurance -- Testing

#### A. Loose/Void End Identification

1. Identification of problem makers was performed through a comparison test, averaging the number of kick outs per tray from groups of five trays from each of the suspect machines. The test trays were run at target 100 weight, circumference, and ecreteur setting.
2. If packer kick outs from all machines were excessive then sieve size and moisture was checked to determine if the problem was in the tobacco.
3. Q.A. began daily weight variance checks on all floors to identify potential problem machines.
4. More sieve and O.V. samples are being taken on a daily basis, and sample averages over several months were compiled to form a base for comparison when loose/void ends become excessive.
5. Cigarette 100 weight targets were increased on several brands based on data compiled by Q.A.

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6. Merit was changed from a fractional cigarette length to eliminate confusion over ecretuer settings.
7. Additional manpower in the lab would enable faster isolation of day to day problems and would expedite testing that may result in process and manufacturing improvements.

Substantial improvements have been shown as a result of these actions. Several projects are underway from which further improvements can be expected. The replacement of the ADT Dryers will increase moisture accuracy and will improve C.V. An evaluation is underway to determine if the pneumatic transfer from the dryers can be replaced with conveyors. This is included in the scope of the dryer replacement project. Further testing on pneumatic delivery systems may also result in decrease degradation. In order to maintain the present level of quality, proper drying methods must be continued, as should the continuous overhauling of machines. Tobacco feed systems must be properly maintained, and extensive product sampling should continue.

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